

Light-up Masks

Goal

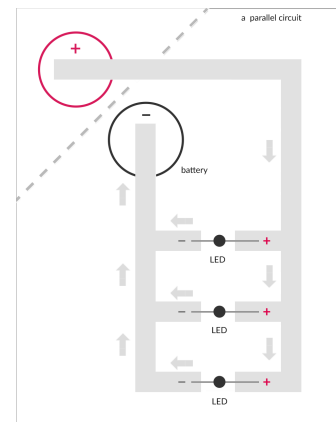
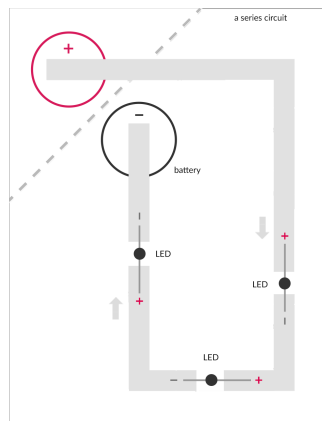
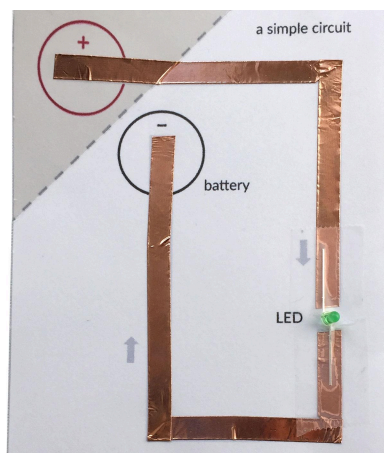
Create a light-up creation you can wear — a mask, armband, or pin — using felt and circuits made of LEDs, conductive tape, battery, and a switch.

Safety guidelines

Here are a few things to keep in mind to keep you safe. The scissors are sharp which makes them better for cutting through heavy felt. Younger children may need your help cutting through the heavy felt. Keep batteries away from children under 3 years old.

Introduction to circuits

A circuit is a **continuous loop** through which electricity can travel. Play with a simple circuit and puzzle out how it's working. *Think about it:* What is each part of the circuit for? Where is the power source, how does energy get to the LED light? How are the series and parallel circuits different?



Simple, series (in a chain), and parallel circuits — the masks will use parallel circuits

Instructions



1. Gather inspiration, materials & tools

Inspiration: Look at finished projects for inspiration. Decide if you want to make a mask, armband, or pin (see p.4-5 for more!).

Choose felt and decorations: Sequins, gems, feathers, and paint.

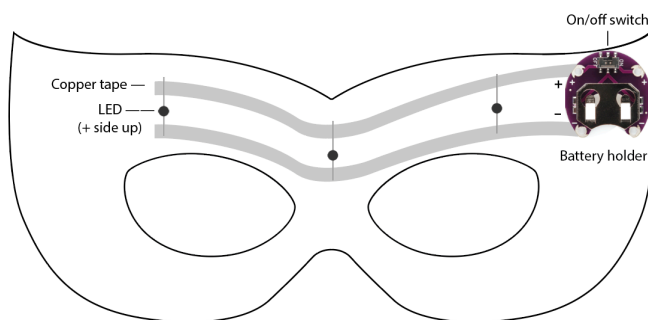
Get a maker's bin: It contains scissors, marker, conductive copper tape, LED lights, battery, battery holder with switch, fabric tape, elastic (for mask), pin backing (for glow pin), paper, and pencil.

2. Brainstorm & design

Sketch some ideas on paper. What part of your creation will light up? How will you create a circuit to connect the light to your power source?

3. Make

- a. Cut your felt into desired shapes.
- b. Create a circuit:
 - i. Attach your copper tape, then battery holder.
 - ii. Push LED light(s) through the front, bend down and tape onto the copper wire. Important: The long wire is the positive (+).
 - iii. Test: Put in the battery and turn on the switch to see if the LEDs light up.
- c. Tape together the front and back mask, and staple on the elastic (or glue on the pin back).
- d. Decorate: Use the fabric tape to glue together felt pieces and to attach decorations.



Mask diagram, front and back of felt mask in progress

4. Celebrate & share, imagine future creations!

Congratulations — Snap a photo to document and share your work! Who would you like to share it with, and how (in a text, Instagram, on Facebook or Twitter, or...)? You can use the hashtag #BayviewMakes

Let us know if you would like us to put your creation up on the BayviewMakes website (<http://bit.ly/BayviewMakes>).

What could you imagine making next with these materials?

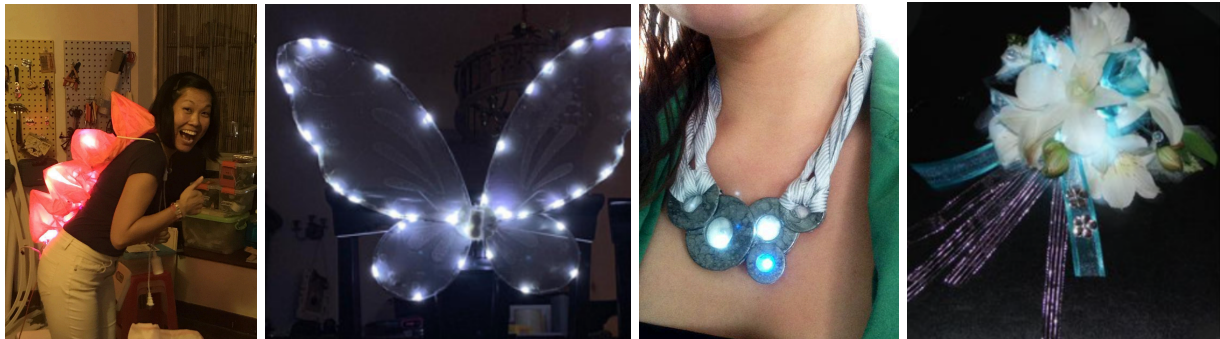
Tips for adjusting to age, skill level, and interest

Dial it down

Working with a youngster, or just want start easy? Start with a pre-wired mask. Get creative with decorations, insert the battery, switch it on, and you're good to go.

Or, take it further

Get creative with costumes or gifts for the upcoming holidays. Who doesn't love a light-up bracelet, necklace, or prom corsage? Pssst — these are going for real money on Etsy!



Go *even* further

Consider a career in smart fabrics, e-textiles, and the wearable electronics industry.



Sensors in workout clothes, ballet shoes electronically trace dancers' movements, jacket that heats up, smart fabric spacesuit

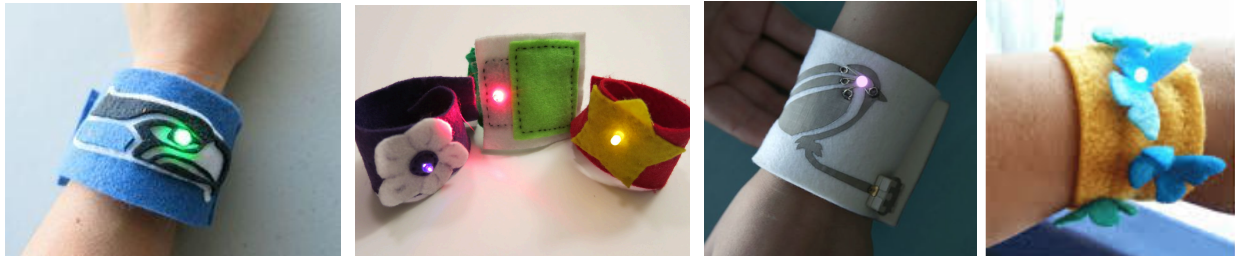


Project Inspiration

Masks (from SparkFun Learning)



Armbands & bracelets



Glow pins

